

WEST INDIAN COCCINELLIDAE VI (COLEOPTERA):
NEW GENERA AND SPECIES OF STICHOLOTIDINI AND A
CLADISTIC ANALYSIS OF INCLUDED GENERA

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Abstract.—Additions to the West Indian fauna of Sticholotidini are *Lenasa*, n. gen.; *Lenasa jayuyai*, n. sp.; *Neotina schwarzi*, n. sp.; *Neaptera doyenii*, n. sp.; *Neaptera cubensis*, n. sp.; and *Neaptera dissita*, n. sp. The first records of *Neaptera* Gordon from Cuba and Costa Rica are reported, and a new key to all Western Hemisphere genera of Sticholotidini was constructed. A phylogeny of the West Indian Sticholotidini generic fauna is proposed.

The fourth publication in this series (Gordon, 1991) dealt with all West Indian genera and species of Sticholotidini then known. Descriptions and added information are presented herein for one undescribed genus and 5 new species discovered in material examined subsequently.

A generic phylogeny for the West Indian genera of Sticholotidini is proposed using 25 characters. The Scymnillini genus *Zilus* was used as the outgroup because it has many similarities to most of the West Indian genera of Sticholotidini. Type material is deposited in the collections of the U.S. National Museum of Natural History, Washington, D.C. (USNM), and the University of California, Berkeley (UCB).

The key to genera of New World Sticholotidini (Gordon, 1991) is modified to include *Lenasa*, new genus, and the South American genera *Glomerella* Gordon (1977), *Neojauravia* Gordon and Almeida (1991), *Neotina* Gordon (1977), and *Nexophallus* Gordon (1969).

KEY TO GENERA OF NEW WORLD STICHOLOTIDINI

- 1. Elytron completely pubescent, pubescence long, dense, distinct *Neojauravia* Gordon and Almeida
- Elytron not pubescent or if so, then pubescence short, sparse, indistinct 2
- 2(1). Abdomen with 6 visible sterna *Paranelasa* Gordon
- Abdomen with 5 visible sterna 3
- 3(2). Epipleuron foveate for reception of femur; eye completely divided by genal extension; prosternum expanded anteriorly, partially or completely concealing mouthparts; anterior tibia broadly expanded, externally dentate or not 4
- Epipleuron not foveate for reception of femur; eye not completely divided; prosternum not expanded anteriorly; tibia unmodified 5
- 4(3). Pronotum with sparse, fine pubescence; external margin of anterior tibia not angulate *Glomerella* Gordon
- Pronotum without pubescence; external margin of anterior tibia sharply angulate *Parinesa* Gordon
- 5(3). Eye large, finely faceted 6
- Eye small, coarsely faceted 7

- 6(5). Head, pronotum sparsely pubescent; prosternal process short, rectangular
 *Nesina* Gordon
 Head, pronotum glabrous; prosternal process oblong, apically rounded
 *Lenasa*, n. gen.
- 7(5). Postcoxal line on 1st abdominal sternum complete 8
 Postcoxal line on 1st abdominal sternum incomplete 9
- 8(7). Terminal segment of maxillary palpus long, slender, apically acuminate
 *Nexophallus* Gordon
 Terminal segment of maxillary palpus less elongate, apex obliquely truncate ...
 *Neaptera* Gordon
- 9(7). Terminal segment of maxillary palpus short, wide *Nelasa* Gordon
 Terminal segment of maxillary palpus elongate, slender 10
- 10(9). Body strongly convex, rounded, apex of elytra abruptly descending ventrad; an-
 tennal club slender; prosternal process not ridged *Neotina* Gordon
 Body normally convex, oval, apex of elytra gradually descending ventrad; antennal
 club extremely broad; prosternal process heavily ridged *Semiviride* Gordon

Lenasa, new genus

Sticholotidini with form rounded, slightly oval; without pubescence except on clypeus; dorsal surface with metallic sheen throughout; punctuation on elytron slightly coarser than on head and pronotum. Head broad; clypeus short, truncate apically, anterior angle rounded (Fig. 1). Eye finely faceted, large; eyes separated by $2\frac{1}{2}$ times width of eye; gena strongly extended onto eye, recurved, occupying nearly $\frac{1}{2}$ eye. Antenna 10-segmented; club 3-segmented, elongate (Fig. 2). Terminal segment of maxillary palpus short, slightly tapered toward apex (Fig. 3). Prosternum without anterior projection, coxae widely separated by large, protuberant, oblong, apically rounded process strongly ridged on lateral, apical margins; median area convex, with long, sparse setae. Elytron normally curved ventrally; lateral margin with weakly defined bead. Hind (flight) wing present. Epipleuron narrow, feebly descending externally, not foveate for reception of femoral apices. Leg with femur robust, shallowly grooved for reception of tibia; tibia slender, unmodified, not externally dentate, shorter than femur; tarsus cryptotetramerous; tarsal claw with small, acute, basal tooth. Abdomen with 5 visible sterna; 1st sternum with postcoxal line incomplete, not reaching hind margin of sternum, extending along hind margin nearly to lateral margin, slightly, evenly recurved in apical $\frac{1}{3}$ (Fig. 4); apex of 5th sternum broadly rounded in both sexes. Male genitalia symmetrical. Female genitalia with unmodified spermathecal capsule (Fig. 5); without infundibulum.

Type species: Lenasa jayuyai, new species.

Lenasa is similar to *Semiviride* Gordon and *Neotina* Gordon in the form of the prosternal process, the slightly recurved postcoxal line extended along the hind margin of the first abdominal sternum, and in having a large, recurved genal extension onto the eye. The apical segment of the maxillary palpus is most similar to that of *Nelasa*. *Lenasa* can be recognized by the large, oblong, strongly ridged prosternal process similar to that of *Semiviride* except that the process is narrower with stronger lateral ridges in *Lenasa*. Food and habitat preferences are unknown. It is presumed that the type specimens were taken by beating vegetation.

The generic name is an arbitrary combination of letters and the gender is feminine.



Fig. 1. *Lenasa jayuyai*, head.

Lenasa jayuyai, new species

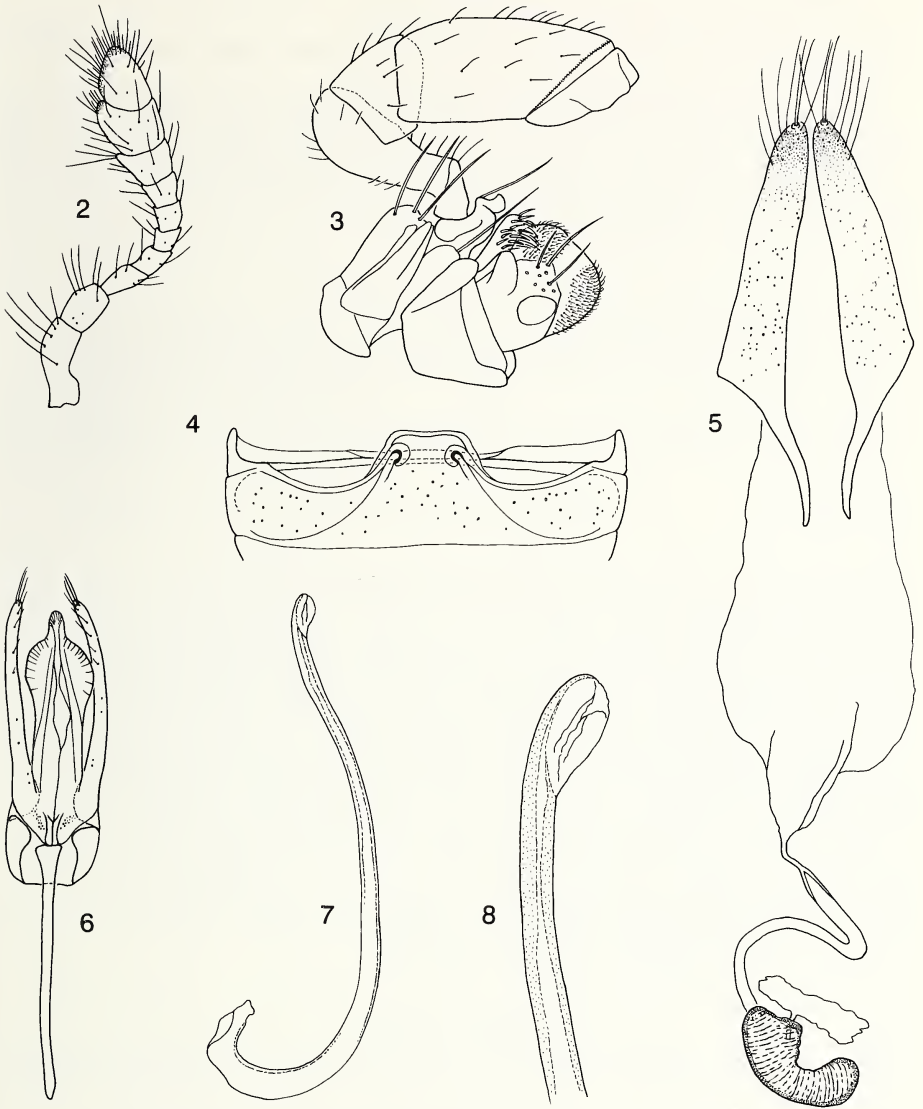
Description: Holotype male, length 1.6 mm, width 1.4 mm. From rounded, slightly oval. Color black with strong, metallic green sheen on dorsal surface; antenna, tibial apex, tarsus yellow; mouthparts, leg, ventral surface dark reddish brown. Head shiny, surface polished, finely punctured; punctures separated by 1 to 4 times a diameter. Pronotum shiny, polished; punctures equal in size to head punctures, separated by 2 to 4 times a diameter. Elytron smooth, polished, with intermixed fine, coarse punctures; coarse punctures separated by less than to 4 times a diameter; fine punctures irregularly scattered. Postcoxal line on 1st abdominal sternum long, slightly recurved at apex (Fig. 4). Genitalia long, slender; basal lobe symmetrical, as long as paramere, apical $\frac{1}{3}$ slightly spatulate, apex forming short, tapered tube; paramere slender, nearly of equal width from base to apex (Fig. 6); siphon somewhat elongate, apex curved (Figs. 7, 8).

Allotype: Length 1.6 mm, width 1.4 mm. Similar to male; genitalia (Fig. 5) with spermathecal capsule short, abruptly bent medially.

Variation: Length 1.4 to 1.6 mm, width 1.3 to 1.4 mm. The dorsal surface varies slightly in degree of green sheen; some specimens are not as brightly green as described for the holotype.

Type material: Holotype; Puerto Rico, Jayuya, VII 22, 1969, H.&A. Howden (USNM). Allotype; same data as holotype except date VII 23, 1969 (USNM). Paratypes; 1, same data as holotype, 3, same data as allotype (USNM).

Other material: One female labeled "El Yunque, PR, 17.2.25, HL Dozier" is



Figs. 2–8. *Lenasa jayuyai*. 2. Antenna. 3. Maxilla. 4. Postcoxal lines on basal abdominal sternum. 5. Female genitalia. 6. Male genitalia, ventral view of phallobase. 7, 8. Siphon of male genitalia.

probably this species. However, it is not designated a paratype because the dorsal surface has a coppery sheen and the elytral punctation is much sparser than is typical of *L. jayuyai*.

Remarks: The species is named for the type locality.

Neotina Gordon

Neotina Gordon, 1977:213. Type species: *Neotina cariba* Gordon, by monotypy.

Neotina cariba was described from a single male specimen collected on the Island of Cuba. *Neotina schwarzi*, a unique male also from Cuba is here described. Thus far the genus is known only from Cuba and may be endemic there. The fauna of the remaining members of the Greater Antilles is relatively well studied at this point, and no specimens of *Neotina* have been discovered.

KEY TO SPECIES OF *NEOTINA*

- 1. Elytron with dual punctation, coarse punctures widely scattered, separated by 3 to 6 times a diameter, deeply impressed; elytron mostly reddish orange, humeral callus and lateral margin dark *cariba* Gordon
- Elytron without dual punctation, punctures fine, dense, separated by one to 4 times a diameter; elytron light brown with greenish sheen *schwarzi*, n. sp.

Neotina schwarzi, new species

Description: Holotype male, length 1.4 mm, 1.2 mm. Form nearly round. Color reddish brown; mouthparts, antenna yellow; head dark reddish brown with greenish blue sheen; pronotum dark reddish brown with greenish sheen; elytron light brown with greenish sheen. Dorsal surface smooth, polished. Head finely punctured, punctures separated by 1 to 3 times a diameter. Pronotum with single punctation, coarse punctures slightly larger than head punctures, separated by less than to twice a diameter, fine punctures dense, separated by less than to twice a diameter. Elytron with punctures slightly smaller than coarse pronotal punctures, separated by 1 to 4 times a diameter; lateral elytral margin thin, narrowly flanged. Genitalia lost.

Type material: Holotype; Cuba, Cayamas, 10.3, EA Schwarz Collector (USNM).

Remarks: *Neotina cariba* has dual punctation on mostly red elytra, and the flanged, lateral elytral margin is thick and wide. *Neotina schwarzi* has greenish brown elytra with single punctation and a thin, narrow lateral elytral flange. The species is named for E. A. Schwarz, collector of the type specimen.

Neaptera Gordon

Neaptera Gordon, 1991:309. Type species: *Neaptera purpurea* Gordon, by original designation.

Three new species are added to the original four described in 1991. One from Costa Rica is the first mainland record of *Neaptera*, and another is the first record from Cuba.

Gordon (1991) stated that *Neaptera*, *Nelasa*, and *Paranelasa* Gordon had 6 visible abdominal sterna. Previously known genera of Sticholotidini had only 5 visible sterna, therefore this was the first reported occurrence of a significantly different character state. Reexamination of these genera indicates that *Neaptera* and *Nelasa* actually have only 5 sterna; many specimens do have the 6th sterna slightly visible, but specimens in a normal condition have only 5 visible sterna. *Paranelasa* remains

unusual because all specimens consistently have a small portion of the 6th sternum visible.

KEY TO SPECIES OF *NEAPTERA*

1. Elytron metallic green; Puerto Rico *viridissima* Gordon
Elytron metallic blue, purple, violet, or dark reddish brown without metallic sheen;
Puerto Rico and elsewhere 2
- 2(1). Elytron dark reddish brown, lacking metallic sheen; Puerto Rico *doyeni*, n. sp.
Elytron reddish brown or not, with metallic sheen; not known from Puerto Rico ... 3
- 3(2). Elytron metallic blue; punctures dense; coarse punctures separated by a diameter or
less; Guadeloupe *korschefskyi* (Duverger)
Elytron metallic blue or not; if black with metallic blue sheen, species not from
Cuba; punctures not dense; coarse punctures separated by a diameter or more 4
- 4(3). Elytron black with metallic blue sheen; Cuba *cubensis*, n. sp.
Elytron metallic purple or violet 5
- 5(4). Species known only from Costa Rica *dissita*, n. sp.
Species not known from Costa Rica 6
- 6(5). Species known only from the Virgin Islands *purpurea* Gordon
Species known only from Guadeloupe or Montserrat *viola* Gordon

***Neaptera doyeri*, new species**

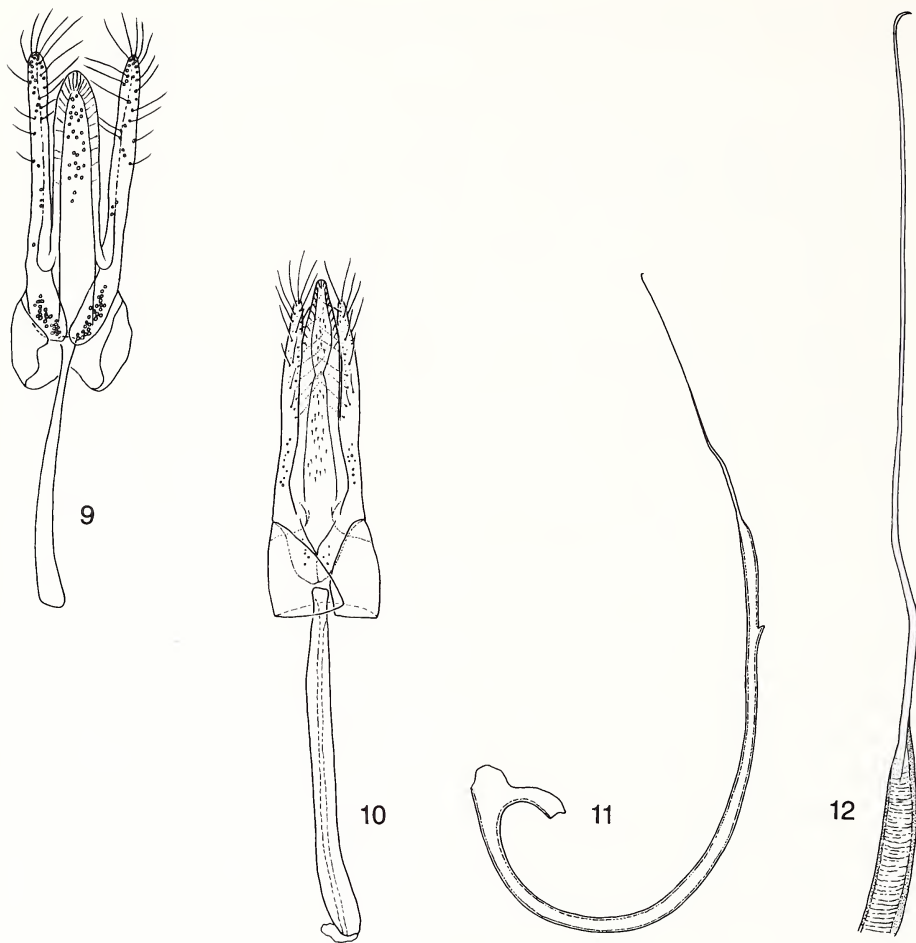
Description: Holotype male, length 1.3 mm, width 1.0 mm. Color dark reddish brown; dorsal surface lacking metallic sheen; mouthparts, antenna, leg yellow; ventral surface reddish brown. Head smooth, polished, punctures distinct, separated by less than to twice a diameter. Pronotum smooth, polished, punctures finer than on head, separated by 1 to 4 times a diameter. Elytron smooth, polished, surface with faint trace of alutaceous sculpture, punctuation dual with sparse, intermixed fine and coarse punctures; coarse punctures separated by 1 to 4 times a diameter. Genitalia with basal lobe shorter than paramere, unmodified; paramere slender, apical setae short, sparse (Fig. 9); siphon lost.

Type material: Holotype: Puerto Rico, Sierra Laquillo, Caribbean Nat. For. Rd. 191, 12 mi S Palmer 2,500', Xii-22-1986, J. Doyen & J. Santiago collectors, ex dead palm fronds (UCB). Paratype (male); 1, same data as holotype (USNM).

Remarks: Both *N. doyeri* and *N. viridissima* have dual elytral punctuation, but the coarse elytral punctures are very large and deeply impressed in *N. viridissima* and comparatively small, feebly impressed in *N. doyeri*, the only other species known from Puerto Rico. The elytra of *N. viridissima* are metallic green while those of *N. doyeri* are dark reddish brown without metallic sheen. In addition, the basal lobe of the male genitalia is broad, apically rounded, and shorter than the paramere in *N. doyeri*; it is slender, apically acute, and longer than the paramere in *N. viridissima*. The species is named for John Doyen, collector of the type series.

***Neaptera cubensis*, new species**

Description: Holotype female, length 1.4 mm, width 1.0 mm. Dorsal surface with metallic sheen; apical 1/5 of head light reddish brown, posterior 2/3 dark brown, entire head with metallic green sheen; pronotum dark brown with metallic green sheen;



Figs. 9–12. Male genitalia. 9. *Neaptera doyeri*, phallobase. 10–12. *Neaptera dissita*. 10. Phallobase. 11. Siphon. 12. Enlarged siphonal apex.

elytron black with metallic blue sheen; mouthparts, apical $\frac{1}{3}$ of femur, tibia, tarsus yellow. Head smooth, polished, punctures distinct, separated by less than to twice a diameter. Pronotum smooth, polished, punctures finer than on head, separated by less than to 3 times a diameter. Elytron smooth, polished, surface without trace of alutaceous sculpture, with dual punctuation composed of sparse fine and coarse punctures, coarse punctures separated by 1 to 4 times a diameter.

Type material: Holotype; Cuba, Det. by F. W. Nunenmacher, *Scymnillus viridimicans* Sic., Korschefsky Collection 1952 (USNM).

Remarks: This is the only Cuban species of *Neaptera* thus far known. The black with metallic blue sheen of the elytron resembles only that of *N. korschefskyi* from Guadeloupe, but *N. cubensis* has widely spaced elytral punctuation in contrast to the

closely spaced punctures of *N. korschefskyi*. The holotype was identified by Nunenmacher (label data) as *Scymnillus viridimicans* which it resembles only in dorsal coloration.

The species is named for the type locality.

***Neaptera dissita*, new species**

Description: Holotype male, length 1.4 mm, width 1.1 mm. Dorsal surface with metallic sheen; apical $\frac{1}{3}$ of head light reddish brown, posterior $\frac{2}{3}$ dark brown, entire head with metallic green sheen; pronotum dark brown with metallic green sheen; elytron black with metallic purple sheen; mouthparts, antenna yellow; epipleuron, leg paler reddish brown than ventral surface. Head smooth, polished, punctures distinct, separated by less than to 3 times a diameter. Pronotum smooth, polished, punctures finer than on head, separated by less than to 3 times a diameter. Elytron smooth, polished, surface without trace of alutaceous sculpture, with dual punctuation composed of sparse, fine and coarse punctures; coarse punctures separated by 1 to 6 times a diameter. Genitalia with basal lobe longer than paramere, lateral margin slightly sinuate; paramere slender, apical setae short, sparse (Fig. 10); siphonal apex drawn out in very slender filament (Figs. 11, 12).

Type material: Holotype; Costa Rica, Turrialba, Heyne, Berlin-Wilm, 900 m V., sp. nov, Sicard det., Korschefsky Collection 1952 (USNM).

Remarks: At present, *Neaptera dissita* is the only known mainland species of *Neaptera*. It most closely resembles *N. viola* from Guadeloupe and Montserrat, but *N. viola* has more closely spaced elytral punctuation, the coarse punctures separated by 1 to 3 times a diameter as opposed to 1 to 6 times in *N. dissita*; the elytral metallic sheen is violet, and the basal lobe of the male genitalia is less sinuate.

The species name is from the Latin *dissitus*, meaning apart or remote, in reference to the mainland type locality.

PROPOSED PHYLOGENY FOR WEST INDIAN GENERA OF STICHOLOTIDINI

Classification of Sticholotidini character states

Character states are listed below with the primitive condition first, derived condition second (in brackets). Numbers on the diagram (Fig. 13) refer to the following characters. Characters are polarized using the Scymnillini, genus *Zilus*, as the out-group.

- (1) Antenna with both segments 5, 6 longer than wide (both segments 5, 6 wider than long)
- (2) Antennal club short, broad (elongate, slender)
- (3) Eye small, coarsely faceted (large, finely faceted)
- (4) Eye completely divided by genal extension (not completely divided by genal extension)
- (5) Genal extension long, $\frac{1}{4}$ or more width of eye (genal extension short, less than $\frac{1}{4}$ width of eye)
- (6) Terminal maxillary segment short (elongate)
- (7) Terminal maxillary segment not apically acuminate (acuminate)

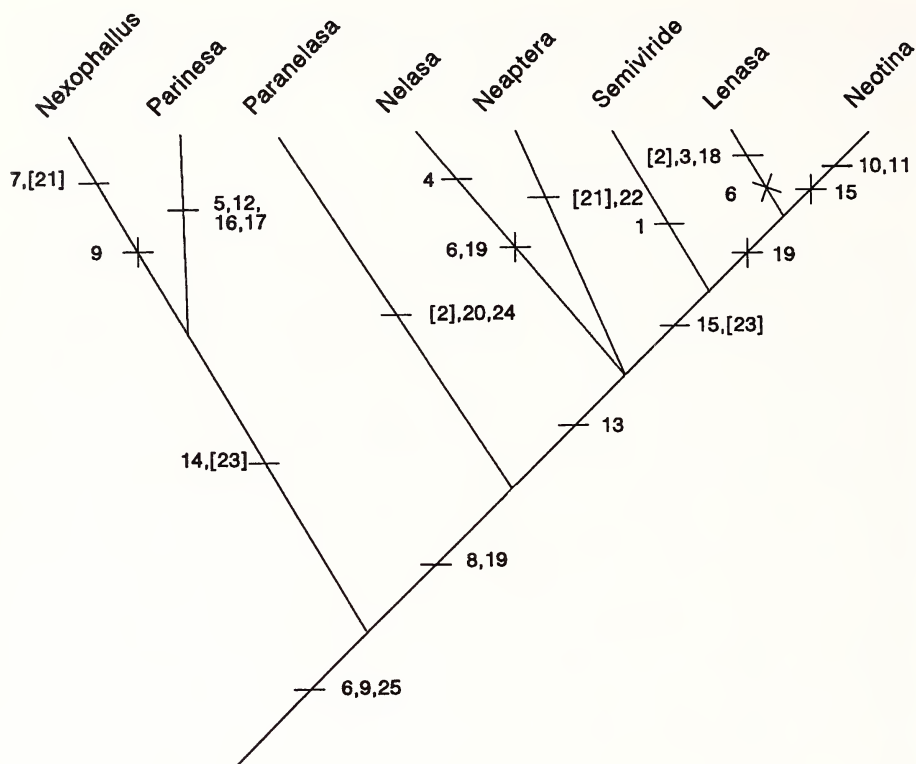


Fig. 13. Proposed phylogeny of West Indian genera of Sticholotidini. Numbers refer to list of characters; convergent characters are in brackets, reversals are indicated by an X.

- (8) Head entirely pubescent (not pubescent)—most genera have some clypeal hairs and/or scattered pubescence near the eye
- (9) Pronotum entirely or partially pubescent (not pubescent). Pronotal pubescence occurs in *Nexophallus* as well as in the outgroup, but the arrangement and type of pubescence are completely different, therefore pronotal pubescence in *Nexophallus* is considered derived.
- (10) Elytron gradually descending ventrally in apical $\frac{1}{3}$ (abruptly descending ventrally in apical $\frac{1}{3}$)
- (11) Lateral margin of elytron with weakly defined marginal bead or without bead (lateral margin strongly flanged)
- (12) Epipleuron not foveate for reception of femur (foveate)
- (13) Prosternum with intercoxal process flat or slightly raised (protuberant)
- (14) Prosternum without anterior projection or lobe (with projection)
- (15) Lateral margin of prosternal process not or finely ridged, not heavily ridged (heavily ridged)
- (16) Anterior tibia simple, unmodified (expanded)
- (17) Anterior tibia not externally dentate (dentate)

- (18) Tarsal claw simple, lacking basal projection (with basal projection)
- (19) Hind (flight) wing present (absent) (character state not ascertained for *Parinesa*)
- (20) Abdomen 5-segmented (6-segmented)
- (21) Postcoxal line on first abdominal sternum incomplete (complete)
- (22) Postcoxal line evenly rounded (angulate)
- (23) Postcoxal line on first abdominal sternum short, apical portion not parallel to posterior margin of sternum (long, apical portion parallel to hind margin of sternum)
- (24) Spermatheca present (absent)—character state in question for *Parinesa*, holotype not dissected, and for *Neotina*, female unknown
- (25) Infundibulum present (absent)—character state in question for *Parinesa*, holotype not dissected; and for *Neotina*, female unknown

were estimated using Hennig 86 developed by James S. Farris. Four alternative phylogenies were generated. The preferred phylogeny, which best fits preconceived notions of the classification, has a length of 32 and a consistency index of 78. Homoplasious characters, with consistency indices in parenthesis, are 2(0.50), 6(0.33), 9(0.50), 19(0.50), 21(0.50) and 23(0.50). Characters 2, 21, and 23 are convergent; characters 6, 9, 15 and 19 are reversals. Character 6 appears as an apomorphy for the group but is secondarily lost twice in *Nelasa* and *Lenasa*. Character 9, absence of pubescence, is proposed as an apomorphy for the group although *Nexophallus* also has significant pubescence. However, this vestiture is different from that found in the outgroup. *Nexophallus* pronotal vestiture consists of very short, appressed, widely spaced, tapered hairs dispersed over the entire pronotal surface as compared to pronotal vestiture of *Zilus* which consists of elongate, semierect, dense, uniformly slender hairs usually confined to the lateral $\frac{1}{4}$ of pronotum.

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